NON-RESIDENTIAL PLAN REVIEW CHECKLIST
January 2009

Office Use: PRS No: _____
Review Date: _____
Reviewer: _____

Non-Residential Plan Review Checklist

This Plan Review Checklist is designed as a tool to assist the design engineer and review engineer in submitting a complete set of plans for issuance of Land Disturbance, Site Development and Building Permits. This checklist is not intended to be a complete listing of all applicable requirements but is only a collection of the most commonly required items. It is the responsibility of the design engineer to obtain all applicable design standards and use good engineering judgment in preparing construction plans.

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SECTION 1 – DESIGN STANDARDS

The following is a listing of applicable design standards for typical residential subdivisions in Overland Park. Depending on project specific circumstances, other standards may apply:

1.1 Overland Park Municipal Code:

- Chapter 15.10 – Stormwater Management Program – Standards and Permitting (OPMC 15.10)
- Chapter 16.200 – Erosion and Sediment Control (OPMC 16.200)
- Chapter 16.210 – Stormwater Treatment (OPMC 16.210)
- Chapter 18.430 – Parking and Loading Regulations (OPMC 18.430)

1.2 Other City Standards and Policies:

- Design Criteria – Stormwater Treatment Standards – City of Overland Park
- Design Criteria – Stormwater Conveyance Facilities – City of Overland Park
- City Engineers Erosion and Sediment Control Standards
- Manual of Infrastructure Standards
- Overland Park Traffic Control Handbook
- Overland Park Standard Details
- Stormwater Management Studies (ES Policy #3-01)
- Stream Corridor Development Plan Requirements
- US Army Corp of Engineers Section 404 Permitting Requirements

1.3 Referenced Standards:

- KC Metro Chapter APWA Division V – Design Criteria Section 5100 – Erosion and Sediment Control (APWA 5100)
- KC Metro APWA Division V – Design Criteria Section 5600 – Storm Drainage Systems and Facilities (APWA 5600)
- MARC / KC Metro APWA Manual of Best Management Practices for Stormwater Quality, March 1, 2008

Other Standards:

- Manual of Uniform Traffic Control Devices (MUTCD)
- AASHTO "Policy on Geometric Design of Highways and Streets – latest edition (AASHTO Green book)
- Roadside Design Guide

SECTION 2 – SUBMITTALS

2.1 Initial Submittals:

___ Stormwater Detention Plans (if required) must be on SEPARATE plan set

___ Other items stipulated with development plan approval

___ Final Stormwater Report (Sealed) – 2 sets (unless previously submitted with other plans)

___ Flood Study (HEC-RAS) – when required – 2 sets with data CD's

___ Work in Special Flood Hazard Areas – submit separate application/checklist for a Floodplain Development Permit

2.2 Final Submittals for Permitting:

___ Preconstruction meeting held prior to permit issuance

___ All Civil plan sheets sealed by Kansas registered Professional Engineer

2.3 Legal Documents (when required for specific projects):

___ Long Term Temporary Construction Easements – dedicated to City (Adjacent to unimproved thoroughfares – check with Planning Technician to verify if obtained)

___ Temporary Construction Easements – dedicated to developer (for subdivision grading etc on other private property not owned by Developer).

___ Stream Corridor Maintenance Agreement (when development includes a stream corridor)

___ Private Lake Agreement (when private lake is included on development)

___ Stormwater Treatment Facilities Maintenance Agreement

___ Stormwater Treatment Facilities Easement – dedicated to City by Maintenance Agreement or by platting.

___ Other stipulated agreements/documents

✓ _____

✓ _____

2.4 Fees paid prior to permitting:

___ Easement/legal document recording fees

___ Unspecified Transportation Improvement Fees (when stipulated)

SECTION 3 – CONSTRUCTION PLANS

3.1 COVER SHEET

___ Project Title

___ Index of sheets

___ General Location Map

___ Legal Description of Property

___ City standard general notes

___ Benchmark information and datum

___ Developer/Owner Contact Information (name/address/phone)

___ Utility contacts and phone #'s

___ Legend

3.2 DRAINAGE PLAN, MAP, AND CALCULATIONS

___ Scale: 1"=100' or larger for onsite areas (smaller scale allowed for large offsite drainages)

___ Existing/Proposed Contours shown

___ All onsite/offsite drainage areas shown
- ✓ No significant drainage basin shifting allowed

___ Storm sewer system extended appropriately
- ✓ 2 acres maximum drainage area tributary to first uppermost inlets in system
- ✓ Extended to undeveloped upstream property lines for future service
- ✓ Public vs Private storm sewer system clearly labeled
- ✓ Public Storm sewer system minimizes length under pavement
- ✓ Must discharge to appropriate downstream drainage system – cannot shift, concentrate, or increase drainage area to adjoining property unless adequate stormsewer facilities are available.

___ Existing/proposed storm sewers shown

___ Storm sewer structures
- ✓ Structure Numbers labeled
- ✓ Stationing shown
- ✓ Adequate side clearance for pipes (see Inlet Box Sizing Chart)
- ✓ 4 foot minimum length, width, and depth.

___ Setback curb inlets not allowed adjacent to parking areas

___ Private Storm Sewer System Design:
- ✓ Enclosed system - 10% design storm minimum capacity
- ✓ 1% Storm overflow system provided
- ✓ 7-inch maximum depth in parking lots and private drives (1% storm)
- ✓ Cannot cause backwater onto adjacent property for 1% and lesser storm event
- ✓ Must discharge to appropriate downstream drainage system – cannot shift, concentrate, or increase drainage area to adjoining property unless adequate storm sewer facilities are available
- ✓ Must be constructed to public storm sewer standards

__ Drainage Table
- ✓ 10% design storm
- ✓ 1% design storm overflow system (1 ft freeboard from EGL required to any building openings)
- ✓ Tc based on 100-ft maximum overland flow length (Calcs req'rd for Tc> 5 min)
- ✓ Runoff Coefficient "C" conforms with APWA Section 5602.3
- ✓ Undeveloped areas - use City "Future Development Plan" land uses to determine future runoff conditions
- ✓ Pipe System design storm Hydraulic Grade Line (HGL) at each inlet shown – HGL must remain 0.5 ft below bottom of throat opening for 10% design storm.

3.3 BOX CULVERTS

___ Private Culverts must be built to Public Standards (see Public Improvements Checklist)

3.4 STORM SEWER PROFILES

___ Structures:
- ✓ Inverts/top elevations indicated
- ✓ 4-foot minimum length and width
- ✓ 4- foot minimum structure depth (top to lowest invert out).
- ✓ Top of pipe doesn't encroach into inlet throat
- ✓ If L+H or W+H >20 feet a structural design required
- ✓ Adequate vertical drop (0.2 ft min for straight through (<22 degrees) flows, 0.5' min for other conditions including multi-inflow pipes, size transitions etc)
- ✓ 8-foot maximum curb inlet width.
- ✓ Cast in place tops required for structures adjacent to parking lots/drives/streets (exception to ES Policy #3-05)

___ Pipe profiles:

- ✓ Profile required for storm sewers with two or more pipe runs
- ✓ Line length, slope, inverts, and top elevations indicated
- ✓ For structures with two or more pipe connections – provide pipe orientation
- ✓ Existing/proposed ground line indicated
- ✓ Minimum cover – 18 inches (APWA 5606.6)
- ✓ Class III RCP or HDPE pipe required (CMP not allowed except for minor "landscape drainage"). HDPE installation details must be provided by designer.
- ✓ Cover exceeding 12-feet – check if Class IV pipe is required for due to earth loads
- ✓ Maximum pipe run length 500 ft (APWA 5604.5)
- ✓ End sections draining into enclosed system include protection grate for 24-inch and larger pipes

__ Outlets
- ✓ Grade for positive drainage shown
- ✓ Flowline indicated for end of pipe AND end section
- ✓ Outlet protection adequate (see Riprap Design Chart)
- ✓ Last pipe section at the smallest grades possible to reduce outlet velocity (3 fps minimum velocity, 0.5% min slope)
- ✓ Discharges to natural streams meets APWA 5605.6 requirements (location/skew etc)
- ✓ Discharges to lakes/ponds at normal pool elevation (no submerged/elevated outlets)
- ✓ Safety Handrails provided for pipe inlets/outlets larger than 42" height pipe. See handrail design requirement on box culvert checklist
- ✓ Toewall detail for outlet structures

3.5 GRADING PLAN

___ Scale: (1"=50' or larger) and north arrow

___ Ground Slopes:
- ✓ contour interval for existing/proposed – 2 ft maximum
- ✓ minimum slope – 2.5%
- ✓ maximum slope – 33% (3:1)
- ✓ Fill slopes must be set back at least 12 inches from any property line

___ Pavement Slopes:
- ✓ 1% minimum grade on asphalt
- ✓ 0.5% minimum grade on concrete surfaces

___ Contours extended 50-ft beyond project/watershed limits – or as necessary to show drainage patterns

___ Spot elevations, high points, and low points as needed

___ Overflow swale Information

- ✓ Beginning / Ending locations shown on plans
- ✓ EGL information shown when crossing property lines
- ✓ Required for all storm sewer systems regardless of pipe capacity
- ✓ May be required in some locations upstream from public system (flat areas and to divert drainage from existing developments)
- ✓ Design Flow (Q-1% minus Q-10% if storm sewer exists – otherwise use Q-1%)

- ✓ For pipe systems designed to carry Q1% - an Overflow Swale IS required and must be sized to carry the Q-10% flow.
- ✓ Cross sections – show flow depth, energy grade depth, side slopes, width and longitudinal slope.
- ✓ Berms on downhill side of area inlets: Show 3 spot elevations with the center overflow elevation set at 6-inch above inlet top
- ✓ No drainage easements for overflow swales – pipe system only

___ Overflow Weir
- ✓ Flow Depth
- ✓ Cross-section of weir
- ✓ MLO's indicated for upstream properties

___ Sites adjacent to major drainageways (greater than 40Ac), stream corridors, lakes & ponds
- ✓ 1% design storm information shown on adjoining property corners:
  - Energy Grade Line
  - Water Surface Elevation
  - Minimum Low Opening (min 1 ft above ultimate EGL or 2 ft above FEMA BFE - whichever is greater)

___ Grading in the Public Street Right of Way:
Finished grade of ¼ to ½ inch per foot towards the public street

___ Grading adjacent to Unimproved Thoroughfares

- ✓ Match approved Preliminary Engineering Study for future thoroughfare grade at right of way line
- ✓ Coordinate with Public Works for Final Design grades if thoroughfare is under design (may make preliminary studies obsolete).
- ✓ Show existing/proposed spot elevations at ROW line – 50 ft intervals - stationing coordinated with thoroughfare plan
- ✓ Provide interim ditch/shoulder when required in accordance with Standard Details

3.6 SITE PLANS & DIMENSION PLANS

Plan View:

___ Scale: 1"=50' or larger

___ All paved areas dimensioned

___ Curbs
- ✓ "Dry" curb indicated where necessary
- ✓ All curb types/locations indicated (6-inch high-back curb required)

___ Curb return radii dimensioned

___ Public Sidewalks:
- ✓ Conforms with location shown on Final Development Plan
- ✓ Local Streets– 4-foot sidewalk one side

- ✓ Collectors and Commercial Streets – 4 foot sidewalk – both sides
- ✓ Thoroughfares – 5 foot walk both sides
- ✓ 4-foot walks only – passing squares shown maximum 200-foot spacing – Driveways can be substituted as passing squares
- ✓ Closing Existing Public Sidewalk – Provide temporary access as needed (OPMC 13.12.410 F) and ADA guidelines

___ Easements shown
- ✓ Temporary Construction Easements, Platted Easements (or by separate document), Access Easements as needed

___ Allowances for future bike/hike trails (see greenway linkages plan for locations)
- ✓ Curb drops installed at width needed for bike/hike trails
- ✓ ADA ramp installed for future tie-in of bike trails
- ✓ Trail shifted close to roadway at intersections – (3 ft minimum greenspace, 6 ft desirable, 10 ft maximum).
- ✓ Parks Department approval of alignment
  - Asphalt Trail detail provided

___ Pavement Marking Plan

___ Drive Entrances to Public Streets
- ✓ Width labeled
- ✓ Concrete driveway in conformance with Commercial Driveway Standard detail
- ✓ Address any conflicts with existing traffic signal loops or street lighting conduit
- ✓ Elevations of quarterpoints, highpoints, lowpoints shown – Drive slopes of ¼ to ½ inch/ft towards the public street in the right of way.
- ✓ Curb radii shown

___ ADA Ramps
- ✓ ADA ramps shown with elevation callouts
- ✓ Truncated Domes for private driveways provided as follows:
  - o For private driveways that are signalized, or expected to be signalized in the future - Truncated Domes are Required.
  - o For private drives that connect to public streets and utilize a standard concrete commercial drive approach - Truncated Domes are Prohibited (unless signalized – previous bullet)
  - o For private drives that connect to public streets and do not have a concrete drive approach Truncated Domes are required.

3.7 EROSION AND SEDIMENT CONTROL PLAN

___ ESC General Information –
- ✓ Project Narrative describes:
  - o Existing site conditions
  - o Identifies sensitive areas (stream corridor, trees, etc.) & areas of special concern
  - o Describes phases
- ✓ General Location Map
- ✓ Nature of work
- ✓ Total disturbed acreage
- ✓ Phasing/sequence of work

- ✓ Identification of sensitive downstream waters (wetlands, streams, reservoirs, etc.)
- ✓ Identification of critical areas (high erosion potential, e.g. steep slopes, wet weather or intermittent streams, springs, etc))
- ✓ Description and implementation sequence of BMPs (interim and permanent)
  - o Conforms with City of Overland Park Erosion and Sediment Control Notes and adopted KC Metro APWA Division 5100 design criteria

___ Erosion and Sediment Control Plans

- ✓ All BMPs are on site. Written Permission must be granted for offsite BMPs.
- ✓ Plan Sheets show:
  - o Disturbance Area (limits of clearing & grading)
  - o Drainage Patterns:
    - ▪ Outlet points (total drainage area, total disturbed area to that point, type of structure)
    - ▪ Inlet points (show flow arrows and tributary acres)
    - ▪ Indicate high/low points of project site
  - o Location & implementation schedule of ESC devices
    - ▪ Includes conditions for removal
  - o Legend of proposed ESC devices
  - o Standard ESC General Notes (1/1/07)
  - o Staging Chart of sequence of all construction related BMP and vegetative activities
- ✓ Detail Sheets
  - o Conform with City Standard Details and adopted KC Metro APWA Division III Standard ESC Details

___ ESC measures <u>prior</u> to land disturbance complies with following minimum standards:

- ✓ Protection of undisturbed areas
- ✓ Perimeter controls
- ✓ Stabilized construction entrance
- ✓ Stabilized parking/delivery/staging Area
- ✓ Diversion of offsite water around disturbance for drainage areas > 0.5 acres
- ✓ Sediment basins (drainage areas ≥ 10 acres)
  - o Basins must function in all phases of the project
- ✓ Other BMPs

___ ESC measures <u>during</u> land disturbance and construction work comply with following minimum standards:

- ✓ Isolation of inactive areas
- ✓ Concrete washout location shown
- ✓ Soil stock piles, location, stabilization & protection
- ✓ Soil stabilization within 14 days after inactivity (seeding, mulch, hydraulic applications, sod, matting, blankets, plastic sheeting, dust control, etc.)
- ✓ Adequate selection of sediment control BMPs:
  - o Silt Fence used as perimeter controls, internal controls, toe protection or interruption of long slopes
  - o Other Linear sediment control devices that trap sediment as water passes through the medium (e.g. compost socks, compost berms, vegetative buffers, etc.)

- o Inlet Protection – except on thoroughfares
- o Sediment traps (if applicable)
- o Sediment basins (applicable only to drainage areas ≥ 10 acres)
  - ▪ Design information shown (chart filled out)
  - ▪ Emergency Spillway provided w/adequate protection
  - ▪ All inflow pipe flowlines ABOVE cleanout level
  - ▪ Riser pipe size/perforations indicated
  - ▪ Anti-flotation device sized indicated
  - ▪ Baffles provided when necessary
  - ▪ Plan shown for ultimate removal of basin
  - ▪ Notes about when basin CAN be removed
  - ▪ Notes about when basin MUST be cleaned out

✓ Adequate selection of erosion controls for runoff entering, crossing or exiting the site:
- o Minimize erosion of cut and fill slopes (terracing, slope drains, diversion dikes & swales, slope roughening, etc.)
- o Erosion Resistant conveyance through site (pipes, check dams, outlet protection, channel lining: sod, matting, rock-lined, etc.)

✓ Adequate measures for work in live watercourses (temporary stream crossings, stream diversion, etc)

✓ Adequacy of offsite receiving channels

✓ Post Construction ESC
o BMPs left in place to become Stormwater Treatment Facilities (STF)
o Reference to STF Plans, Maintenance Agreement

___ ESC measures <u>after</u> land disturbance and construction work comply with following minimum standards:

✓ Permanent stabilization (seeding, sodding, etc.)
- o Planting schedule and layout
- o Completion certification if required
- o Long Term maintenance agreement for plantings if required

✓ Post Construction ESC
- o BMPs labeled on plans to become Stormwater Treatment Facilities (STF)
- o Reference to STF Plans, Maintenance Agreement
- o Sediment basins (applicable only to drainage areas ≥ 10 acres)
  - ▪ Criteria for removal of basin(s) from service
  - ▪ Notes on timing & methods for basin(s) clean out and area stabilization

3.8 TRAFFIC CONTROL PLAN

___ Pavement connections or encroachments to Collectors and Thoroughfares require PROJECT SPECIFIC traffic control plan.

___ Conforms with MUTCD and City of Overland Park Traffic Control Handbook

___ Must include plan for non-work times (non-work periods)

___ Includes dimensions for distances between warning signs & channelizers

___ Type III barricades shown to keep proposed streets closed until street opened to public

3.9 DETAIL SHEETS

___ Must use City Standard Storm Sewer Details – except concrete mix does not need to meet KCMMB mix designs.

___ Other Details on Private Property – Can use City Standard Details if desired, but not required.

3.10 MISCELLANEOUS ITEMS/OTHER PERMITS

___ KDHE Notice of Intent (NOI) signed application must be submitted for projects >1 acre.

___ Kansas Dept of Agriculture Division of Water Resources (KDA-DWR) approved permit must be obtained for work in SFHA or streams with 240+ acre watershed.

___ Corp of Engineers Section 404 Permit must be obtained for work in Jurisdictional Waters of the US.

___ KDOT right of way work permit required prior to work in state right of way

___ Reasonably Safe from Flooding criteria – Any buildings constructed in areas previously removed from the SFHA by fill must conform to FEMA Tech Bulletin 10-01.
See ES Policy 3-101 for information.